SUBJECT: Trip Report - ATM Preliminary
Design Review: Mission Requirements/Operations Working Group,
MSFC, September 24, 1968 Case 610

DATE: September 30, 1968

FROM: D. J. Belz



#### MEMORANDUM FOR FILE

Working Groups of the ATM Preliminary Design Review met at MSFC on September 24-26, 1968. The author participated in the session concerned with operational characteristics and mission requirements of the ATM. This memorandum summarizes the major topics of discussion at that session.

## 1. Experiment Timelines

Mr. T. Telfer (MSFC) reported the current status of MSFC's and Martin/Denver's studies of ATM experiment operating schedules. MSFC plans to perform the experiments simultaneously wherever possible in order to maximize the total duration of observations. The compatibility of required pointing accuracies, pointing stabilities, and solar targets has been assessed for each ATM experiment except S055A; the compatibility studies concluded that simultaneous operation will allow more than the required observation time for each experiment considered. That conclusion has, however, ignored the possibility that unavoidable misalignments between experiments may be unacceptable to the principal investigators whose experiments have been selected by MSFC for simultaneous operation.

# 2. Acquisition of Data from Experiments

MSFC has been attempting to provide a capability for uninterrupted acquisition of data from ATM experiments. The ATM as presently designed provides:

- a) real-time telemetry of data from experiments while the spacecraft is in VHF contact with ground stations,
- b) on-board tape recording of data between contacts with ground stations, and
- c) telemetry of recorded data.

The ATM includes two identical tape recorders, each being capable of continuously recording for ninety minutes; current operating rules require that only one recorder be used, the other to be employed only if the first becomes inoperable.

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Unclas 00/32 11303 Miss A. Mc Nair (MSFC) presented an analysis of the ATM's capability to transmit data from experiments to the ground. The analysis indicated that every third day the spacecraft would be out of VHF contact with a ground station for more than two hours. During that time, continuous recording of data from experiments will not be possible with the present system unless both ATM tape recorders are used. It was reported that MSFC will re-examine its requirement for continuous acquisition of data.

### 3. Alternate ATM Mission

An alternate ATM mission not presently included in the baseline was discussed briefly. If the LM-ATM is unable to dock to the MDA in the course of attempting to carry out the primary baselined mission, the proposed operation would have the CM/SM undock from the orbiting assembly, rendezvous with and dock to the LM-ATM, and carry out a limited solar astronomical mission.

The current ATM design requires the solar arrays to be deployed within twelve hours after AAP-4 is launched. Beyond twelve hours, the capability of the ATM's batteries is not sufficient to provide the required electrical power. Mr. E. Whitacre (MSC) noted that the proposed alternate mission might not permit deployment of the ATM solar arrays until considerably more than twelve hours after the launching of AAP-4. The electrical power required prior to deploying the arrays might be provided by reinstating primary batteries in the LM-ATM design.

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